

REMARKS

By this amendment, claims 1, 9, 10, and 17 have been amended, and claim 21 has been canceled without prejudice or disclaimer. Accordingly, claims 1, 3, 4, 6, 7, 9-20, 22, and 23 are currently pending in the application, of which claims 1, 10, 17, and 20 are independent claims. Applicants appreciate the indication that claims 10, 12, 14, 16, and 23 contain allowable subject matter and the indication that claim 20 is allowed.

Applicants respectfully submit that the above amendments do not add new matter to the application and are fully supported by the specification.

In view of the above amendments and the following Remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending objections and rejections for the reasons discussed below.

Rejections Under 35 U.S.C. § 102

Claims 17-18 stand rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by U.S. Patent No. 6,890,674 issued to Beckmann, *et al.* ("Beckmann").

In order for a rejection under 35 U.S.C. § 102(e) to be proper, a single reference must disclose every claimed feature. To be patentable, a claim need only recite a single novel feature that is not disclosed in the cited reference. Thus, the failure of a cited reference to disclose one or more claimed features renders the 35 U.S.C. § 102(e) rejection improper.

Amended claim 17 recites, *inter alia*:

wherein the electrical signal is determined based on a variable input *consisting of* the concentration of the fuel and the volume of the sensor film (emphasis added)

Beckmann fails to disclose at least these features. Rather, Beckmann discloses a conductor 70 having particle portions 70a that is applied to or mechanically fastened to a piece of Nafion 72 (col. 8, lines 37-41). The resistance of the conductor 70 varies according to the

expansion and contraction of the Nafion 72 (col. 8, lines 43-56). Thus, Beckmann discloses using the volume change of the Nafion 72 to vary the resistance of the conductor 70 in order to sense the methanol concentration. Claim 17, however, recites that "the electrical signal is determined based on a variable input *consisting of* the concentration of the fuel and the volume of the sensor film" (emphasis added). Thus, Beckmann fails to disclose or suggest every feature of claim 17.

The Office Action incorrectly states that "[t]he Nafion conductor displays such a signal via known resistance values, wherein relaxed and strained Nafion have different resistance values" (page 3). As noted above, it is Beckmann's conductor 70 that has different resistance values according to the strain imposed by the Nafion 72 (col. 8, lines 56-60). Hence, Beckmann fails to teach or suggest at least "wherein the electrical signal is determined based on a variable input consisting of the concentration of the fuel and the volume of the sensor film."

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 102 rejection of claim 17. Claims 18 and 19 depend from claim 17 and are allowable at least for this reason. Since none of the other prior art of record discloses or suggests all the features of the claimed invention, Applicants respectfully submit that independent claim 17, and all the claims that depend therefrom, are allowable.

Rejections Under 35 U.S.C. § 103

Claims 1, 3-4, 6-7, 9, 11, 13, 15, and 21-22 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over U.S. Patent No. 6,303,244 issued to Surampudi, *et al.* ("Surampudi") in view of Beckmann.

To establish an obviousness rejection under 35 U.S.C. § 103(a), four factual inquiries must be examined. The four factual inquiries include (a) determining the scope and contents of the prior art; (b) ascertaining the differences between the prior art and the claims in issue; (c)

resolving the level of ordinary skill in the pertinent art; and (d) evaluating evidence of secondary consideration. *Graham v. John Deere*, 383 U.S. I, 17-18 (1966). In view of these four factors, the analysis supporting a rejection under 35 U.S.C. 103(a) should be made explicit, and should "identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements" in the manner claimed. *KSR Int'l. Co. v. Teleflex, Inc.*, 550 U.S. __, slip op. at 14-15 (2007). Furthermore, even if the prior art may be combined, the combination must disclose or suggest all of the claim limitations. See *in re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Assuming *arguendo* that the prior art elements could be combined, the combined prior art elements do not disclose or suggest every claimed feature.

Amended claim 1 recites, *inter alia*:

a sensor that detects a concentration of a fuel in a fuel mixture solution and outputs a signal according to the concentration; and

a control unit that receives the signal from the sensor and controls the fuel mixture solution,

wherein the diluent comprises H₂O and wherein the sensor comprises a sensor film that changes volume thereof depending on the concentration of the fuel, and wherein the signal is determined based on a variable input *consisting of* the concentration of the fuel and the volume of the sensor film (emphasis added)

Surampudi in view of Beckmann fails to disclose at least these features. Therefore, Surampudi in view of Beckmann fails to teach each and every feature of claim 1.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of claim 1. Claims 3, 4, 6, 7, and 9-16 depend from claim 1 and are allowable at least for this reason. Since none of the other prior art of record, whether taken alone or in any combination, discloses or suggests all the features of the claimed invention, Applicants respectfully submit that independent claim 1, and all the claims that depend therefrom, are allowable.

Claim 19 stands rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Beckmann in view of Surampudi.

Applicants respectfully submit that claim 17 is allowable over Beckmann and Surampudi fails to cure the deficiencies of Beckmann noted above with regard to claim 17. Hence, claim 19 is allowable at least because it depends from an allowable claim 17.

Accordingly, Applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of claim 19. Since none of the other prior art of record, whether taken alone or in any combination, discloses or suggests all the features of the claimed invention, Applicants respectfully submit that claim 19 is allowable.

Allowable Subject Matter

Applicants appreciate the indication that claims 10, 12, 14, 16, and 23 contain allowable subject matter.

Claim 10 has been amended to include the subject matter indicated as being allowable in the Office Action dated 10/29/2007. Applicants respectfully submit that claims 12, 14, 16, and 23 depend from an allowable base claim and are allowable at least for this reason. Accordingly, Applicants submit that claims 10, 12, 14, 16, and 23 are in condition for allowance.

Applicants appreciate the indication that claim 20 is allowed.

CONCLUSION

Applicants believe that a full and complete response has been made to the pending Office Action and respectfully submit that all of the stated objections and grounds for rejection have been overcome or rendered moot. Accordingly, Applicants respectfully submit that all pending claims are allowable and that the application is in condition for allowance.

Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative at the number below to expedite prosecution.

Prompt and favorable consideration of this Reply is respectfully requested.

Respectfully submitted,

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Date: April 17, 2008

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